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EXAMINER

LUNDGREN, JEFFREY S

ART UNIT

PAPER NUMBER

1639

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/583,920	Applicant(s) SAILOR ET AL.	
	Examiner JEFFREY S. LUNDGREN	Art Unit 1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/30/09.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-45 is/are pending in the application.
- 4a) Of the above claim(s) 1-9, 19-43 and 45 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10, 12-18 and 44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Status of the Claims

Claims 1-10, 12-45 are pending in the instant application; claims 1-9, 19-43 and 45 are withdrawn from consideration; claims 10, 12-18 and 44 are the subject of the Office Action below.

Claim Rejections - 35 USC § 103 – Necessitated by Amendment

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. § 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 10, 12-18 and 44 are obvious over Trau and Lobanov:

Claims 10, 12-18 and 44 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Trau *et al.*, U.S. Patent No. 2003/0124564, published on July 3, 2003, in view of Lobanov *et al.*, U.S. Patent No. 6,678,619, issued on January 13, 2004.

Claim 10 is directed to an optically encoded thin film, comprising a thin film in which porosity varies according to one of a library of computer controlled waveforms in a manner to produce a one of a library of codes detectable in the reflectivity spectrum.

Trau teaches highly functionalized, porous organosilica particles and methods of their synthesis are described that employ high amounts of functional silane such as 3-mercaptopropyl

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trimethoxysilane. Silane particle diameters are controlled from less than 1 micron to over 100 micron. The particles have a high surface area due to their advantageous internal structures, which consist of large pores, typically up to 10 m that are linked by small channels of typically about 20 nm diameter. Also described on the particles are thin films that contribute to the porosity variation and allow for the coding:

“In a corresponding embodiment, different batches of particles are coated with different thicknesses of clear silicon shell, and the differing optic properties from the altered thicknesses are relied on to distinguish the particles. For example, a first group of 0.5 micron average diameter particles are coated with 0.1 micron shell (0.7 micron final diameter), and a second group of 0.5 micron average diameter particles are coated with 0.3 micron shell (1.1 micron final diameter). The first group of particles are optically distinguished from the second group of particles by their different light scattering properties. The second group will more readily scatter 1 micron wavelength light than the first group. Both types are flowed through an imaging flow cell and optic imaging signals are produced that distinguish the different particle types based on their different scattering characteristics.

The scattering properties of the particles can also be altered by incorporation of other materials into the particles either during synthesis (e.g., by incorporating titanium isopropoxide or similar reagent with the silane monomer) or post synthesis. These materials could include Ti and Al to alter the scattering and Fe to give the particles magnetic properties.

In a preferred embodiment, multiple, for example, six, different types of particles are made, each having a different thickness of optic coating. During use, the six types are distinguished on the basis of scattering signals, despite their having the same fluorescent inner regions. This technique is particularly desirable for use in combinatorial chemistry as it provides another factor for distinguishing particle types. The technique of using light scattering for distinguishing different particle types is facilitated by the high porosity of the particles. In a preferred embodiment, the difference in refractive index, more specifically the refractive index profile (e.g. generated by the varying porosity within each particle), gives rise to a unique scattering signature from each particle.”

Trau, paragraphs 0089-0091.

As in claims 17 and 42, Trau teaches that the particles are silica and have silica films (see Abstract and paragraphs 0015 and 0220). As in claim 18, Trau teaches that the particles are

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"micron-sized" (paragraph 0094). As in claims 12, 13, 14, 37, 38 and 39, Trau teaches DNA receptors and analytes, as well as others (paragraph 0019) - Applicants' specification appears to suggest that the term receptor means "a molecule that binds or associates with the analyte" - see page 8, first full paragraph.

Regarding claims 15 and 40, the limitation of the "receptor for a gaseous analyte" reads on the polystyrene of the polystyrene particles of Trau that are sensitive/swell in the presence of certain organic solvents, such as acetonitrile (see paragraphs 0006 and 0186). It is irrelevant that Applicants have an intended use for the receptor since anticipation of a product claim does not necessarily relate to any of the methods of use.

Although the particles of Trau are encompassed by the claim since there is no material limitation as to what "porosity varies according to a computer controlled waveform" would impart, Trau does not explicitly teach the use of a computer system for the code generation.

Lobanov teaches a method, system, and computer program product for encoding and building products of a virtual combinatorial library, wherein a plurality of chemical reactions and reagent data for forming products of the virtual combinatorial library are encoded in a computer readable form. A compiler then operates on the encoded information and generates reagent mapping data. The compiler compiles the encoded chemical reaction to generate computer instructions that control the operation of a processor. A compact data structure containing data is generated and stored in a memory. This data structure is then used to gain immediate access to any of the products of the virtual combinatorial library (see Abstract).

One of ordinary skill in the art would have had a reasonable expectation of success in arriving at the invention as claimed because each of Trau and Lobanov are each directed to the use of identification codes in the art of combinatorial chemistry. One of ordinary skill in the art would have recognized the advantages of using a computer system as taught by Lobanov to generate the encoding scheme of Trau because of the advantages of high speed output that computer systems could provide and the ability to multiplex. Therefore, the invention as a whole was prima facie obvious at the time it was invented.

Common Ownership of Claimed Invention Presumed

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the Examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Examiner to consider the applicability of 35 U.S.C. § 103(c) and potential 35 U.S.C. §§ 102(e), (f) or (g) prior art under 35 U.S.C. § 103(a).

Conclusions

No claim is allowable.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

If Applicants should amend the claims, a complete and responsive reply will clearly identify where support can be found in the disclosure for each amendment. Applicants should point to the page and line numbers of the application corresponding to each amendment, and provide any statements that might help to identify support for the claimed invention (*e.g.*, if the amendment is not supported *in ipsis verbis*, clarification on the record may be helpful). Should

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Applicants present new claims, Applicants should clearly identify where support can be found in the disclosure.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Jeff Lundgren whose telephone number is 571-272-5541. The Examiner can normally be reached from 7:00 AM to 5:30 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Christopher Low, can be reached on 571-272-0951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Jeffrey S. Lundgren/

Primary Examiner, Art Unit 1639